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Habenaria pseudoglaucophylla (Orchidaceae), a New Species from
Minas Gerais, Brazil

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ABSTRACT. *Habenaria pseudoglaucophylla* J. A. N. Batista, R. C. Mota & N. Abreu (Orchidaceae, Orchideae, Habenariinae), a new species from the state of Minas Gerais, Brazil, is described and illustrated. The species was first collected in 1970, but previously misidentified as *H. glaucophylla* Barbosa Rodrigues and *H. umbraticola* Barbosa Rodrigues. Distinctive features of the new species are the rosulate leaves, the deeply tripartite lip, the oblong posterior petal lobe with a truncate apex, and the short, tooth-like anterior petal lobe. The new species occurs in campo rupestre vegetation, usually associated with quartzite outcrops.

RESUMO. *Habenaria pseudoglaucophylla* J. A. N. Batista, R. C. Mota & N. Abreu (Orchidaceae, Orchideae, Habenariinae), uma nova espécie para o estado de Minas Gerais, é descrita e ilustrada. A espécie foi coletada pela primeira vez em 1970, mas identificada erroneamente como *H. glaucophylla* Barbosa Rodrigues e *H. umbraticola* Barbosa Rodrigues. Caracteres distintivos para a nova espécie são as folhas rosuladas, o labelo profundamente tripartido, o segmento posterior das pétalas oblongo, com ápice truncado e o segmento anterior das pétalas curto, dentiforme. A nova espécie ocorre em campo rupestre, geralmente associada a afloramentos de quartzito.

Key words: Brazil, campo rupestre, *Habenaria*, IUCN Red List, Minas Gerais, Orchidaceae.

The genus *Habenaria* Willdenow (Orchidaceae, Orchideae, Habenariinae) has a temperate and pan-tropical distribution, and its main centers of diversity are in Brazil, southern and central Africa, and East Asia (Kurzweil & Weber, 1992). *Habenaria* is the only representative of subtribe Habenariinae in the New World. Brazil, with 165 to 170 species (Hoehne, 1940; Pabst & Dungs, 1975), is the country with the largest number of *Habenaria* species in the New World and possibly worldwide. In Brazil, the main centers of diversity for the genus are the cerrado biome, a species-rich savanna vegetation covering 2 million km² of central Brazil (Ratter et al., 1997), and the campo rupestre vegetation of the central and southeastern regions of the country. Minas Gerais, with about 81 species (Pabst & Dungs, 1975), has been the state with the highest number of recorded species. In the course of a survey of the genus in Minas Gerais, a new species was found, which is described and illustrated here.

Habenaria pseudoglaucophylla J. A. N. Batista, R. C. Mota & N. Abreu, sp. nov. TYPE: Brazil. Minas Gerais: Mun. Catas Altas, Serra do Caraça, 1200 m, Gruta do Padre Caio, 20 Mar. 2005 (fl.), R. C. Mota 2818 (holotype, BHCB; isotype, CEN). Figures 1, 2.

Species haec *Habenariae glaucophyllae* Barbosa Rodrigues similis, sed ab ea floribus paulo majoribus, corolla viridi, petali segmento posteriore oblongo apice truncato

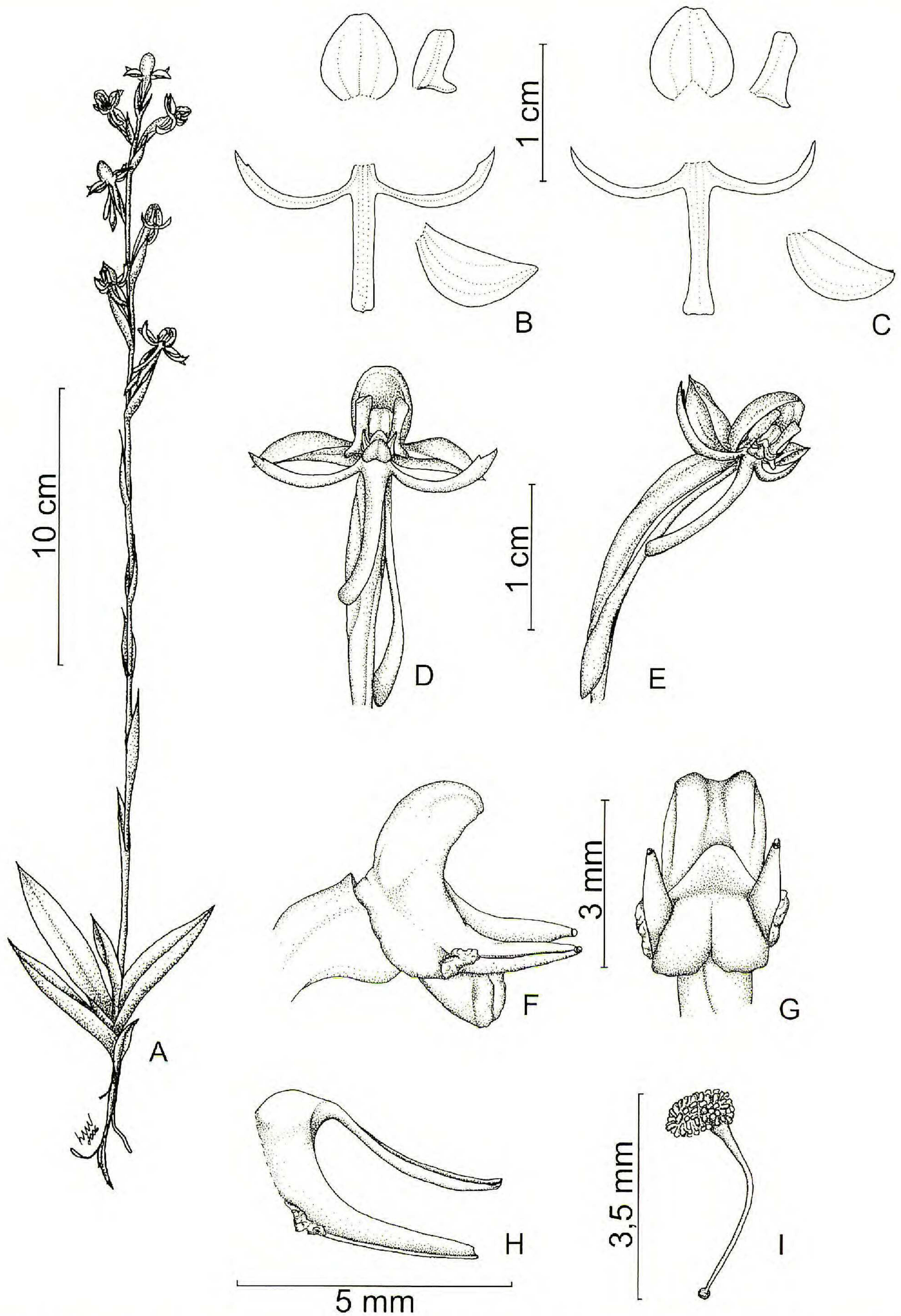


Figure 1. *Habenaria pseudoglaucophylla* J. A. N. Batista, R. C. Mota & N. Abreu. —A. Habit. —B, C. Perianth. —D. Flower, front view. —E. Flower, side view. —F. Column, side view. —G. Column, front view. —H. Rostellum, side view. —I. Hemipollinarium. Drawn by Luiz Menini Neto from Abreu *et al.* 73 (CESJ), except for C and H from the type Mota 2818 (BHCB).

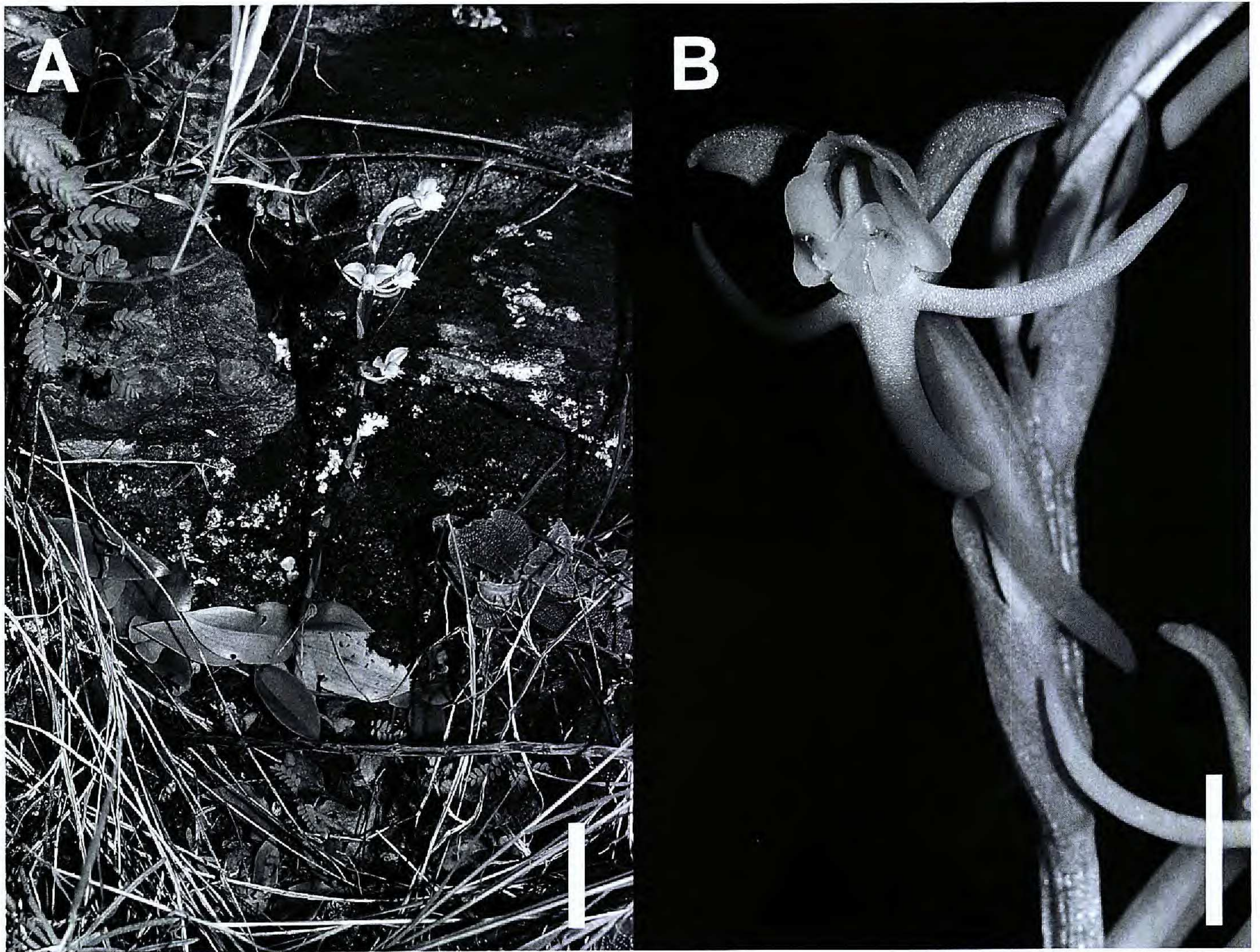


Figure 2. *Habenaria pseudoglaucophylla* J. A. N. Batista, R. C. Mota & N. Abreu. —A. Plant, in rocky, iron-rich slopes. —B. Flower, 3/4 side view. Scale bars: A = 3 cm, B = 5 mm. Photographed from live specimens from Morro do Chapéu (Batista 1967, BHCB).

atque segmento mediano labelli majore (9–11 mm longo) apice truncato distinguitur; etiam occurrit in campis rupestribus.

Terrestrial herb; *roots* few, ca. 0.7 mm wide; *tuber* ellipsoid, ca. 13×7 mm; *stem* erect, terete, 16–33 cm (including the inflorescence), 1.5–4 mm wide. *Leaves* basal, 5 to 8, sheathing, lanceolate, elliptic, or obovate, $2.1\text{--}8.3 \times (0.7\text{--})1.7\text{--}3.5$ cm, membranaceous, rosulate, adaxially light green, abaxially greenish silver, base attenuate, margins united to 1/8 of the leaf length, apex acuminate, mucronate. *Inflorescence* 20–30 cm, few flowered, lax; peduncle 14–20 cm, with 2 to 5 sheath-like bracts, spiral, appressed, lanceolate to ovate-lanceolate, $1.5\text{--}3.2 \times 0.5\text{--}0.8$ cm, acuminate; rachis 3.8–12 cm; *floral bracts* ovate-lanceolate to lanceolate, shorter or equaling the pedicellate ovary, $10\text{--}25 \times 2.5\text{--}7$ mm, decreasing in size toward the inflorescence apex, acuminate. *Flowers* 4 to 10, resupinate, glabrous, green to greenish yellow; pedicellate ovary spreading from the rachis, 14–20(–25) mm, ovary slightly arched, 12–18 mm, pedicel 3–6 mm; *sepals* green, margin slightly verrucose toward the apex; dorsal

sepal deeply concave, rounded when flattened, 4–5.8 \times 4–5.2 mm, apex somewhat truncate; lateral sepals spreading, concave, obliquely elliptic when flattened, 7–8.8 \times 3.5–4.7 mm, base twisted, adaxial side turned downward, upper margin revolute, mucro subapical, dorsal; *petals* slightly bipartite, green; posterior lobe oblong, 4–5 \times 1.5–1.8 mm, apex truncate, obscure to distinctly apiculate; anterior lobe reduced to a tooth-like projection, inserted at the base of the posterior segment, 1–1.8 \times 0.9–1.4 mm, oblong, apex rounded; *lip* distinctly tripartite, white or whitened at the base, green toward the apex of the lobes; undivided basal part short, 1–1.5 \times 2–2.5 mm; lateral lobes spread, perpendicular to the midlobe, linear, slightly curved upward, 9–11 \times 0.7–1(–1.3) mm, occasionally with a subapical tooth, acute; midlobe turned downward, linear, slightly curved backward, 9–11 \times 1.2–1.3 mm, apex truncate; *spur* green, pendent, free from the bracts, slightly curved, slightly clavate, equaling the pedicellate ovary, 15–20 mm long, base ca. 0.8 mm wide, apex 1.2–1.5 mm wide; *column* erect, 3.5–4 mm high; connective emarginate, green; auricles fleshy, verrucose, flat, ca.

1 mm; anthers ca. 2 mm, canals 2–3 mm; *hemipollinaria* 2, separated, each ca. 5 mm long; viscidium ca. 0.3×0.3 mm, spaced ca. 2 mm apart; caudicles 3.5–4 mm; pollinia 4, ca. 1.2×0.5 mm; stigmas 2, 2.5–3 mm, green, receptive surface convex, turned forward, closely parallel, forming a single receptive surface, receptive part 1–1.5 mm, apex ca. 1 mm wide each, truncate; rostellum ca. 4.5 mm, green; midlobe triangular, fleshy, obtuse, completely placed between the anthers, ca. 1.5 mm long, ca. 1 mm high; side lobes parallel throughout, ca. 3.5 mm. *Fruit* not examined.

Distribution. *Habenaria pseudoglaucophylla* is so far known only from single collections from six localities in the state of Minas Gerais: Serra do Cabral, Serra da Piedade, Serra do Caraça, Serro, Serra Negra, and Morro do Chapéu.

Habitat, ecology, and phenology. *Habenaria pseudoglaucophylla* occurs from 1200 to 1600 m, in campo rupestre vegetation, usually associated with large quartzite outcrops and growing in the vicinity of small shrubs. This is a very distinctive habitat not typically occupied by other *Habenaria* species and very different from the open wet fields where *Habenaria* species abound. In the four collections made by the authors, no other *Habenaria* species were observed as sympatric at the collection sites. However, it can also be found in wet moss and in cliff bases; in the Serra da Piedade and Morro do Chapéu, the taxon was also collected in steep, rocky, iron-rich slopes (Fig. 2). Plant growth is associated with the availability of water during the rainy season, and flowering occurs from the peak to near the end of the rainy season, from January to April.

IUCN Red List category. According to the current knowledge of the species and using IUCN Red List Categories and Criteria (IUCN, 2001), *Habenaria pseudoglaucophylla* can tentatively be classified as Endangered (EN B2b(iii); D). It is unlikely that the species will suffer any significant collection pressure at any time, but loss of habitat is a real threat. Just two of the known locations are in conservation areas (Serra do Cabral and Serra do Caraça), and only one is effectively protected (Serra do Caraça). At Serra Negra only a few individuals were observed in an area intensely visited by tourists. The other population sizes are estimated to number less than 50 individuals. Three of the known populations of the species are still located in remote areas, but this can easily change with the ever-increasing human occupation or use of these areas.

Etymology. The new species epithet refers to the fertile and vegetative morphological similarity with *Habenaria glaucophylla*.

Discussion. As far as we could determine, *Habenaria pseudoglaucophylla* was first collected by H. S. Irwin in 1970 in Serra do Cabral. At that time the species was examined by G. F. J. Pabst, who identified some of the collections as *H. glaucophylla* and *H. umbraticola* Barbosa Rodrigues. In fact, the three species are similar in habit, with basal leaves, but differ in reproductive characters (Table 1). *Habenaria pseudoglaucophylla* is distinct from these and other similar species, such as *H. nemorosa* Barbosa Rodrigues and *H. piraquarensis* Hoehne, by its slightly larger flowers, green corolla (vs. white in *H. glaucophylla*), lateral sepals larger than the dorsal sepal (vs. subequal in size in *H. glaucophylla*, *H. umbraticola*, *H. nemorosa*, and *H. piraquarensis*), oblong posterior petal segment with a truncate apex (vs. linear-falcate with an acute apex in *H. glaucophylla*, *H. umbraticola*, *H. nemorosa*, and *H. piraquarensis*), and lip midlobe larger and with a truncate apex (vs. smaller and with an acute apex in *H. glaucophylla*, *H. umbraticola*, *H. nemorosa*, and *H. piraquarensis*). Additionally, *H. pseudoglaucophylla* inhabits campo rupestre vegetation associated with quartzite outcrops, while the other species typically inhabit the interior of semideciduous or humid forests.

The combination of rosulate leaves, deeply tripartite lip, oblong posterior petal lobe with a truncate apex, and a short, tooth-like anterior petal lobe are unique for *Habenaria pseudoglaucophylla* among New World *Habenaria*. According to the infrageneric treatments for the genus, *H. pseudoglaucophylla* should be placed in section *Quadratae* Kraenzlin (Kraenzlin, 1892, 1901) or *Microstylinae* Kraenzlin (Cogniaux, 1893). However, the exact infrageneric affiliation and classification of the new species are unclear. As stated, in vegetative characters *H. pseudoglaucophylla* is similar to a group of species characterized by the basal leaves, such as *H. glaucophylla*, *H. umbraticola*, and *H. piraquarensis*, while in the morphology of the petals and column structure it is similar to *H. curvilabria* Barbosa Rodrigues, *H. pleiophylla* Hoehne & Schlechter, and other species in the affinity of *H. odontopetala* Reichenbach f. and *H. floribunda* Lindley (Table 1). Future cladistic studies using both molecular and morphological characters may clarify the affinities of *H. pseudoglaucophylla* with these and other similar species.

Paratypes. BRAZIL. **Minas Gerais:** 8 km W of Joaquim Felício, Serra do Cabral, 1200 m, 7 Mar. 1970, H. S. Irwin, S. F. da Fonsêca, R. Souza, R. Reis dos Santos & J. Ramos 27101 (HB, RB, UB); Serra da Piedade, 35 km E of Belo Horizonte, near BR-31, 1800 m, 18 Jan. 1971, H. S. Irwin, R. M. Harley & E. Onishi 28681 (NY, UB); Serro, Milho Verde, Serra do Ouro, 1 Feb. 2003, R. C. Mota 1732 (BHCB); Rio

Table 1. Diagnostic characters for *Habenaria pseudoglaucophylla* and morphologically similar species.

	<i>H. pseudoglaucophylla</i>	<i>H. glaucophylla</i>	<i>H. umbraticola</i>	<i>H. pleiophylla</i>	<i>H. curvilabria</i>	<i>H. odontopetala</i> ^b
Stem (cm) ^a	16–33	22–31	22–37	(50)70–124	30–66	25–100
Leaves	basal, rosulate	basal, rosulate	basal, not rosulate	basal to scattered	scattered	scattered
Dimensions (cm)	2.1–8.3 × (0.7)1.7–3.5	6–15 × (1.6)3–5	4.5–9 × 0.8–2.1	8–22 × 1.4–2.6(4)	7–13 × 1.3–2.5	7–20 × 2–5
Flowers	4 to 10	7 to 11	3 to 9	up to 70	12 to 40	up to 60
Corolla	green	white	green	green	green	green
Dorsal sepal (mm)	4–5.8 × 4–5.2	4–5.5 × (2.5)4–5	ca. 4 × 2.5	5–6 × ca. 6	3.5–5 × 3–5	4–7 × 4–5
Lateral sepals	twisted	not twisted	twisted	twisted	twisted	not twisted
Posterior petal lobe	oblong	linear-falcate	linear-falcate	oblong	oblong	oblong
Length (mm)	4–5	4–5.5	3.5–4	(3)3.5–4.5(5)	2.5–3	3–5
Apex	truncate	acute	acute	truncate	truncate	truncate
Lip	tripartite	tripartite	tripartite	tripartite	simple	simple
Lateral lobes (mm)	9–11	6–10	3–4	2–4	–	–
Midlobe (mm)	9–11	5.5–8	4.5–5	(6.5)8–10	6.5–9	6–12
Apex	truncate	acute	acute	obtuse	obtuse	obtuse
Habitat and distribution	campo rupestre, Brazil	forests, Brazil	forests, Brazil	forests, mangrove (restinga), secondary vegetation (capoeira) and fields, Brazil	forests, Brazil	forests, Brazil and northern South America, Central America, Mexico, the Antilles, and Florida, U.S.A.

^a Including the inflorescence.

^b Based on Correl (1950) and Luer (1975).

Preto, Serra Negra, trilha para a Gruta do Funil, 17 Apr. 2006, N. L. Abreu, L. Menini Neto & O. J. Bastos Neto 73 (CESJ); Nova Lima, Morro do Chapéu, ca. 18 km S de Belo Horizonte, 29 Feb. 2007, J. A. N. Batista 1967 (BHCB).

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